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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 20985 | 7590 | 12/28/2006 | EXAMINER | |
| FISH & RICHARDSON, PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022 | | | ALROBAYE, IDRIS N | |
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| | | 2183 | | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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| 3 MONTHS | 12/28/2006 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | |
|------------------------------|--------------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/723,454 | BUDNY ET AL. |
| | Examiner | Art Unit |
| | Idriss N. Alrobaye | 2183 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 26 November 2003.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-35 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-35 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 29 April 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 04-29-2004.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application
 6) Other: _____.

DETAILED ACTION

1. This action is responsive to communications through the applicant's application filed on 11/26/2003.

Claims 1-35 are presented for examination

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The specification is objected to because of informalities. For example, page 2, last line, "High-end processor 22" should be "High-end processor 20". Page 7, second to last line, "communication bus 134" should be "communication bus 135". These are examples, the specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 29-31 are rejected under 35 U.S.C. 112, second paragraph, for lack of antecedent basis.

6. As per claim 29, the claim recites "The apparatus", there is insufficient antecedent basis for "apparatus" in the claim. For purpose of prosecution, the examiner assumes "The article".
7. As per claims 30-31, the claims recite "The method", there is insufficient antecedent basis for the "method" in the claim. For purpose of prosecution, the examiner assumes "The article".

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 22-31 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Last paragraph of page 12 of the specification provides intrinsic evidence that applicant's clear intent is that the broadest reasonable interpretation of the claim term "computer readable media" is that the term is to encompass propagated signals. Propagated signals are a form of energy. Energy is not one of the four categories of the invention and therefore the claims are not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefore is not a composition of matter. Accordingly, the rejection of claims 22-31 are non-statutory.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3, 12-14, 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Sexton et al. U.S. Patent No. 5,068,821 (hereinafter Sexton).

12. As per claim 1, Sexton teaches a method of co-processing, comprising:
connecting an interface of a first processor (element 110) to an interface of a second processor (element 120) using a bus, the interface of the second processor being configurable to place the second processor in a slave processing mode or a master processing mode (see e.g. Fig. 2. Also, see e.g. col. 5, lines 47-67 to col. 6, lines 1-64); and

sending a task from the first processor to the second processor through the bus, the task comprises an instruction that places the second processor in a slave processing mode (see e.g. col. 5, lines 47-67, wherein the start command is the instruction).

13. As per claim 2, Sexton teaches the invention as claimed above. Sexton further teaches the method of claim 1, wherein the task further comprises an instruction that

places the second processor in a master processing mode (see e.g. col. 5, lines 47-67 to col. 6, lines 1-64).

14. As per claim 3, Sexton teaches the invention as claimed above. Sexton further teaches the method of claim 1, further comprising:

 sending data from the second processor to the first processor based on the task received from the first processor (see e.g. col. 5, lines 47-67 to col. 6, lines 1-64).

15. As per claim 12, Sexton teaches an apparatus comprising:

 a first processor (element 120) having an interface connected to an interface of a second processor (element 110) using a bus, the interface of the first processor being configurable to place the first processor in a slave processing mode or a master processing mode (see e.g. Fig. 2. Also, see e.g. col. 5, lines 47-67 to col. 6, lines 1-64);

 and circuitry, for co-processing (see e.g. Fig. 2, elements 125 and 135), to:

 receive a task from the second through the bus, the task comprises an instruction that places the first processor in a slave processing mode (see e.g. col. 5, lines 47-67, wherein the first processor (element 120) receives a task (start command) from the second processor (element 110) and places the first processor (element 120) in a slave mode).

16. As per claim 13, Sexton teaches the invention as claimed above. Sexton further teaches the apparatus of claim 12, wherein the task further comprises an instruction

that places the first processor in a master processing mode (see e.g. col. 5, lines 47-67 to col. 6, lines 1-64).

17. As per claim 14, Sexton teaches the invention as claimed above. Sexton further teaches the apparatus of claim 12, further comprising circuitry to:

send data from the first processor to the second processor based on the task received from the second processor (see e.g. col. 5, lines 47-67 to col. 6, lines 1-64).

18. Claims 22-24 are rejected on grounds corresponding to the reasons given above for claims 1-3.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 4-10, 15-21, 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sexton in view of Adiletta et al. Intel Technology Journal, Network Processors "The Next Generation of Intel IXP Network Processors" (IDS) hereinafter Adiletta.

21. As per claim 4 and 5, Sexton did not explicitly show the interface of the processors is a quad data rate (QDR) or a media switch fabric. However Adiletta shows using QDR for interface of the SRAM (see e.g. page 10, Fig. 4) and MSF to connect network processors (see page 9-10, section: The media-switch fabric interface), for the purpose of providing sufficient control information bandwidth for network applications (see e.g. page 11, section: The SRAM cluster. See also page 11, first column).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Adiletta of using QDR or MSF for the interface in the invention of Sexton, for the purpose of allowing the co-processing of Sexton to communicate with the outside world (other network systems or network processors) with sufficient bandwidth (see page 11, section: The SRAM cluster). The advantage of using QDR or MSF is to support high bandwidth applications.

22. As per claim 6, Sexton in view of Adiletta teaches the invention as claimed above. Adiletta further teaches connecting a QDR interface of a processor to an MSF interface of a third processor using a second bus (see e.g. Fig. 2-4). The motivation utilized in the combination of claim 4, super, applies equally as well to claim 6.

23. As per claim 7, Sexton in view of Adiletta teaches invention as claimed above. Sexton in view of Adiletta further teaches the method of claim 6, wherein the first,

second and third processors are processors in a plurality of processors and the method further comprises:

connecting the plurality of processors successively in a chain with the first processor at one end of the chain and a last processor at the opposite end of the chain from the first processor, each of the plurality processors having an MSF interface and a QDR interface (see Adiletta Fig. 4, wherein ME's are plurality of processors. see also the rejection for claim 4-5 above); and

connecting the QDR interface of the last processor to an external memory (see e.g. Fig. 4, DRAMs).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Adiletta in the invention of Sexton, for the purpose of increasing computation capability in the network processor (see Adiletta, e.g. page 13, THE IXP2XXX micro-engine).

24. As per claim 8, Sexton in view of Adiletta teaches invention as claimed above. Sexton in view of Adiletta further teaches the method of claim 7, further comprising: sending a task from a first processor to the last processor; executing the task; and sending a result to the first processor (see Adiletta, e.g. page 11, 2nd column; page 13, 2nd column to page 16. See also Sexton reference, it also teaches this limitation). The motivation utilized in the combination of claim 7, super, applies equally as well to claim 8.

25. As per claim 9, it is rejected for the same reasons set forth above in claim 7.
26. As per claim 10, it is rejected for the same reason set forth above in claim 8.
27. Claims 15-21 are rejected on grounds corresponding to the reasons given above for claims 4-10.
28. Claims 25-31 are rejected on grounds corresponding to the reasons given above for claims 4-10.
29. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sexton in view of Rajagopal et al. U.S. Patent Application Publication No. 2002/0143998 (hereinafter Raj).

30. As per claim 11, Sexton did not explicitly disclose the processors having different speeds and the first processing speed is greater than the second processing speed. However, Raj shows master and slave processing operate at different speed (see Raj, paragraph [0021]), for the purpose of accommodating different applications within a network.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Raj of allowing varying processing speed in the invention of Sexton, for the purpose of allowing distributing

computing environment, and accommodating different applications within a network (see Raj, paragraph [0007]). The advantage of using varying processing speed would significantly utilize the power distribution of the system.

31. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sexton in view of Jungek et al. U.S. Patent Application Publication No. 2002/0009079 (hereinafter Jungek).

32. As per claim 32, Sexton teaches a network router, comprising:
a network co-processing system, the network co-processing system comprising:
a first processor having an interface (see Sexton, e.g. Fig. 2, wherein element 110 is the first processor); and
a second processor having an interface connected to the interface of the first processor by a bus (see Sexton, e.g. Fig. 2, wherein element 120 is the second processor), the interface of the second processor being configurable to place the second processor in a slave processing mode or a master processing mode (see Sexton, e.g. col. 5, lines 47-67 to col. 6, lines 1-64).

Sexton shows an input line and an output line (see Sexton, Fig. 1, elements 1 and 2). Sexton did not explicitly show the input line connecting to a first network or the output line connecting to a second network. However, Jungek teaches the missing features that Sexton did not teach (see Jungek, e.g. Fig. 9, elements 910 (100A-100B)),

for the purpose of allowing intercepting and processing packets communicated between an upstream network and a downstream network.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Jungek in the invention of Sexton, for the purpose of allowing intercepting and processing packets between an upstream and a downstream networks. The advantage of having an upstream and a downstream would allow the processing elements to perform stateless processing tasks on the up/down packet stream (see Jungek, paragraphs [0190]-[0194]).

33. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sexton in view of Jungek and further in view of Adiletta.

34. As per claim 33-34, Sexton in view of Jungek did not explicitly show the interface of the processors is a quad data rate (QDR) or a media switch fabric. However Adiletta shows using QDR for interface of the SRAM (see e.g. page 10, Fig. 4) and MSF to connect network processors (see page 9-10, section: The media-switch fabric interface), for the purpose of providing sufficient control information bandwidth for network applications (see e.g. page 11, section: The SRAM cluster. See also page 11, first column).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Adiletta of using QDR or MSF for the interface in the invention of Sexton, for the purpose of allowing the co-

processing of Sexton to communicate with the outside world (other network systems or network processors) with sufficient bandwidth (see page 11, section: The SRAM cluster). The advantage of using QDR or MSF is to support high bandwidth applications.

35. As per claim 35, Sexton in view of Jungek and further in view of Adiletta teaches the invention as claimed above. Adiletta further teaches connecting a QDR interface of a processor to an MSF interface of a third processor using a second bus (see e.g. Fig. 2-4). The motivation utilized in the combination of claim 34, super, applies equally as well to claim 35.

Conclusion

36. The following is text cited from 37 CFR 1.111(c): In amending reply to a rejection of claims in an application or patent under reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. The applicant or patent owner must also show how the amendments avoid such references or objections.

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- The I2C-Bus specification is a master-slave protocol. Any connected device has the ability to be the master or slave.

- U.S. Patent No. 7,003,607 shows controllers (bridges) that can be configured to be a master or a slave.
- U.S. Patent No. 6,330,658 shows a master/slave multi-processor arrangement and method thereof.
- U.S. Patent No. 5,835,714 discloses master and slave modes.
- See also attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Idriss N. Alrobaye whose telephone number is 571-270-1023. The examiner can normally be reached on Mon-Fri from 8:00 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on 571-272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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RICHARD L. ELLIS
PRIMARY EXAMINER